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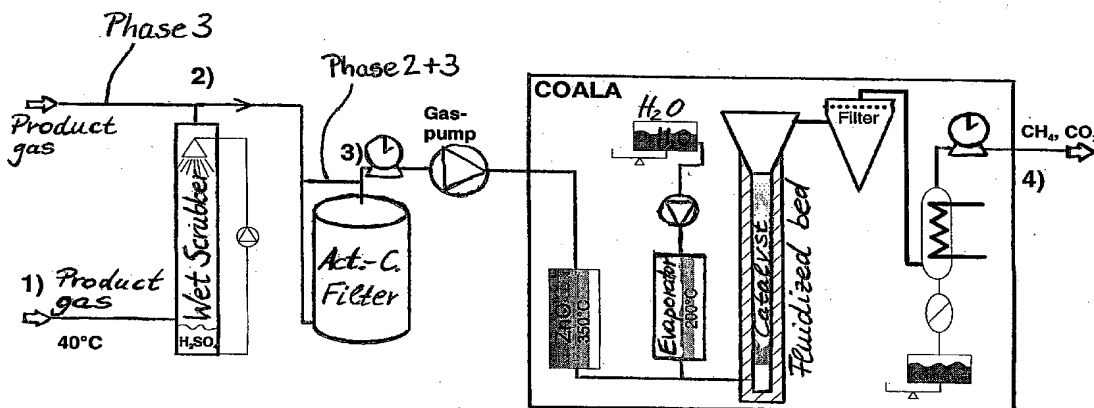
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(54) Title: A PROCESS FOR THE SYNTHETIC GENERATION OF METHANE



(57) **Abstract:** The present invention discloses a process for the synthetic generation of methane from a feed gas mixture comprising carbon monoxide, hydrogen and water vapour and optionally aromatic hydrocarbons; said process comprising the steps of: a) bringing the feed gas mixture in contact with a fluidized bed catalyst having catalyst particles which comprise as catalytic active component a metal and/or a metal compound or a mixture thereof under the circumstances of: b) an elevated temperature in the range of 250 to 500°C; c) a feed gas pressure in the range of 0.8 to 70 bar; d) a gas hourly space velocity of 1000 to 50000 h<sup>-1</sup>; and e) a concentration of H<sub>2</sub>/CO in the initial gas mixture in the range of 0.25 to 5. The afore-mentioned process allows to catalytically convert hydrogen and carbon monoxide effectively in a fluidized bed catalytic reactor which avoids a rapid deactivation of the catalyst material and therefore delivers a high activity of the catalytic active components in the process. Both thermochemical reactions, the endothermic reformation of higher hydrocarbons, i.e. aromatic hydrocarbons, and the exothermic methane generation, proceed simultaneously within the fluidized bed catalytic reactor, leading to an overall enhanced thermal efficiency of the conversion process.